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TIPS and RYE Briefing to CODIB Task Team V on Biographics

(by 19 August 1965)

1. A general description of the TIPS System was first provided by The TIPS consists of a series of target information files (e.g., signal information, order of battle, personalities, etc.), management information (e.g., resources available, sites, manpower, etc.), and target activity (characterized by high-volume dynamic information processing). The TIPS System shares the facilities of a double Univac 490 system with the TIPS using a very small portion of the total facility which is essentially devoted to the RYE operations.

2. There is presently a TIPS pilot system in operation. Thirteen files are presently planned to be contained on five magnetic tape reels with each tape mounted on a fully-dedicated tape station. Two of the thirteen files are presently operational and five are in the final stages of de-bugging; the rest should be operational by December 1965. The pilot system will eventually have 75 out-stations which are directly connected to the computer system. Sixty of these stations are already installed, within the main building, with one connected by a secure line to a building adjacent to the main building. The out-stations are of two categories; either primary or secondary. The primary stations can interrogate any of the several files and change or update its own file on a 24 hour a day basis. The secondary type stations can interrogate any file 24 hours a day, but any changes to any files desired by such station users must be arranged "off-line" with the appropriate group that controls the files desired to be changed.

3. There are three types of interrogation available: ST, (short term) which has an average response time of 15 minutes; LT, (long term) which provides overnight service; PRO (procedure) inquiries which can be made only by the primary organization and requires extensive response activity.

4. A major characteristic of this "on-line" system is that the requests generate activity in the executive program of the computer which in turn arranges for the appropriate execution of the various programs which are called in from the drum storehouse. These programs, in turn, then operate on the appropriate file stores on the

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dedicated magnetic tape stations. In many cases, the entire file on the magnetic tape is searched to produce the desired results. In this respect, this on-line system differs from other on-line systems (such as airline reservations, stock quotations, etc.) which have a much more rapid response (in terms of seconds) because the files are located in mass memories which provide random access. However, there is no comparison between the kinds of interrogations made in an airline reservation or stock quotation system and the interrogations in TIPS. The users in TIPS require the capability to interrogate any field or combination of fields in any file or set of files. This required flexibility militates against the use of random access devices for TIPS.

5. Another major feature of this system is the arrangement whereby management required the various users and holders of the files to not only provide the appropriate requirements but also to actually write the programs required to do the job. This tended to simplify and make more realistic the system as it is being developed. It was pointed out that it required at least eight weeks orientation for the typical customer to become acquainted with how to prepare and use the system as it is now developing. This arrangement, commonly known as open shop, has created a very desirable rapport between not only the different file holders but also between the file holders and the machine system.

6. Typical requests include such information as the station number, the file number, a request of identification, a type of request, priority indication, the telephone number, name and address of the requestor and descriptors. Many typical request questions are pre-formatted and contain blanks for the filling in of appropriate descriptors by the requestor. A typical question might be how many yellow Pontiacs do we have in the Washington area. Here the blanks to be filled in would be yellow, Pontiacs, and Washington.

7. The files have different formats. The system is designed to accomodate to this. Programs have been and can be written by the holders of the files for their own files or for other files by agreement with the holders thereof. The maximum length of each record is 320 characters per record and at the present time there are between three thousand to eighty thousand records per file. Only five per cent of any file is available on a short-term basis for a typical request. There is no boolean logic built in the present search mode. In other words, for example, you can ask for this plus that but you cannot ask for this plus that minus part of that.

8. A general description of the RYE System was next provided by who confined his remarks to the Secret level. The system, which was purchased in 1962, consists of two Univac 490

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computer systems each containing 13 tape stations, a printer and a drum storage device on each of the two computers. A major feature of the system is an executive-controlled multi-program activity on the 130 million character drum which also contains several worker programs. As jobs come in (whether RYE or TIPS), priorities are determined and up to five programs can run concurrently (not simultaneously). It was estimated that one, two hundredth of every second of RYE time can very easily take care of the full TIPS activities. This was an important consideration since there was a management constraint that TIPS would not significantly effect the operational capability of the RYE System. Thus, the TIPS System was characterized as a "mail box" like operation and not on-line in the sense that systems like the MIT MAC, or other similar systems operate. The RYE System (including TIPS inquiries) during July performed 31,000 jobs with a 3.8 minute average per job. Sixty per cent of these were completed in 30 seconds, 96 per cent were completed in 30 minutes. The other four per cent were the unhappy customers. It was pointed out that in one day there were over 2,800 jobs performed. The key to this kind of a system is the ability to have programs which provide an adequate interrupt and priority activity. The cost of the jobs mentioned above on both TIPS and RYE average approximately \$3.00 each.

10. It was explained that the system designers expected some errors and that the system is very complex. They have even gone through the trouble of preparing a scheduling algorithm to determine ahead of time that such a system would operate. It was mentioned that the system does not contain a newly available feature on some systems known as base address registers. These would provide much better program control and record keeping. It was noted in response to a question that there is a log kept on all jobs on magnetic tape.

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Secretary

Note: This information has been reviewed and approved for both content and classification by 

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